ADVENTURES
IN WEB ANIMATIONS

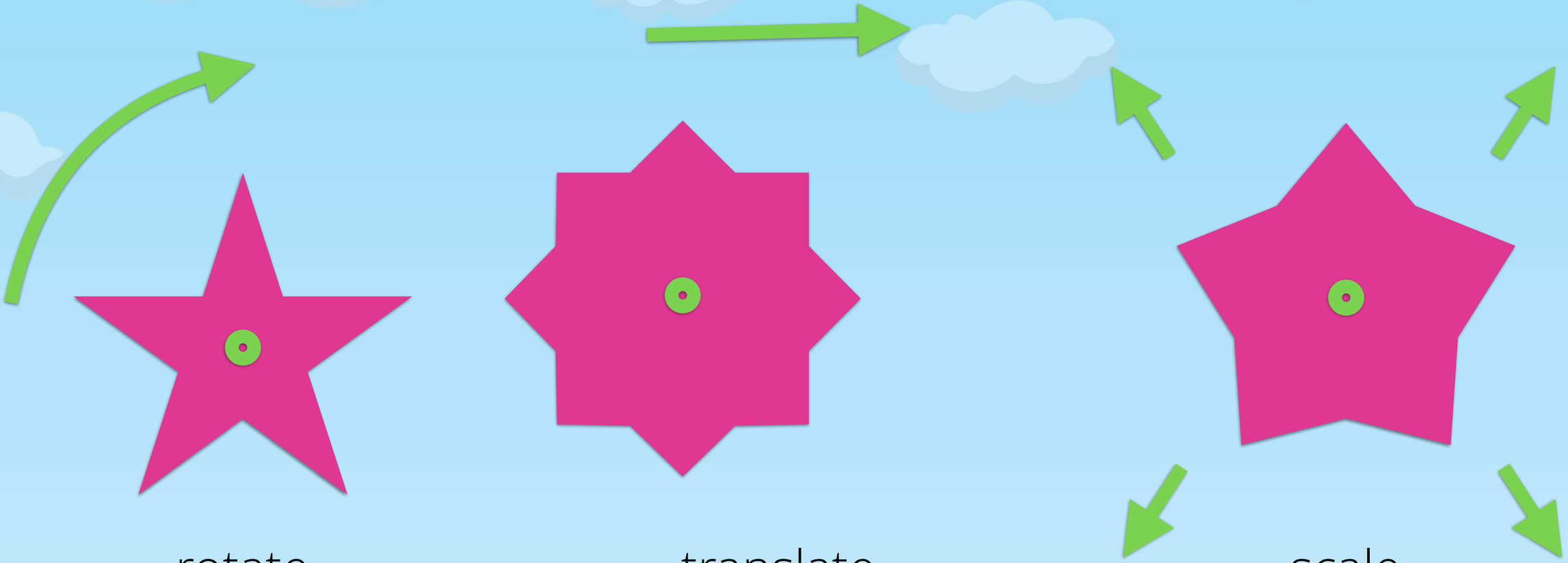
Level 2 – Transforms

SECTION 1

Transforming Rotate

Transforms

CSS transforms let you modify elements in their coordinate space. They can be rotated, translated, scaled, and skewed.

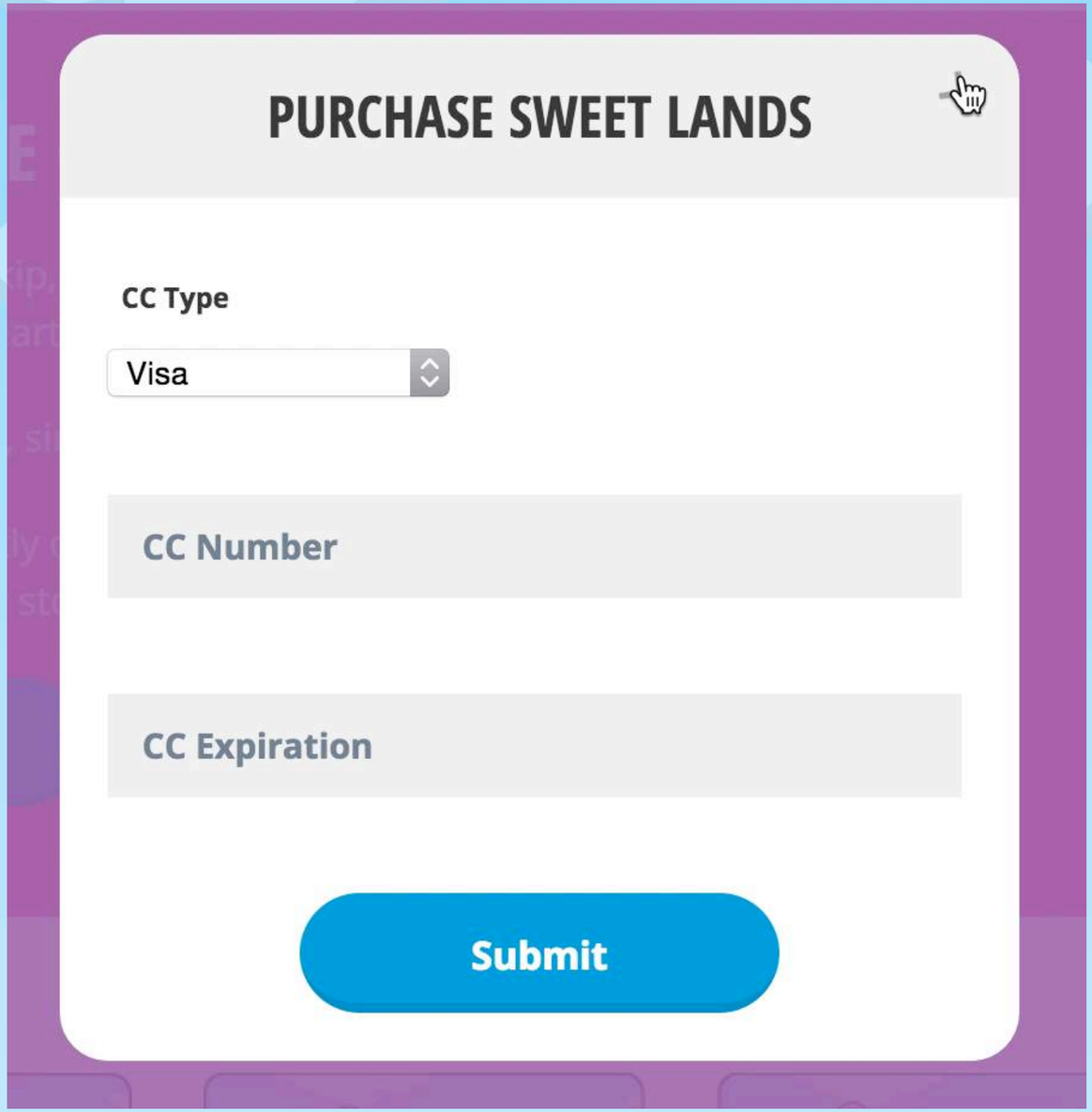


Rotating the Modal Close Icon

initial style for the X

CSS

```
.modal-close {
  font-size: 200%;
  right: 15px;
  top: 0;
  position: absolute;
}
```

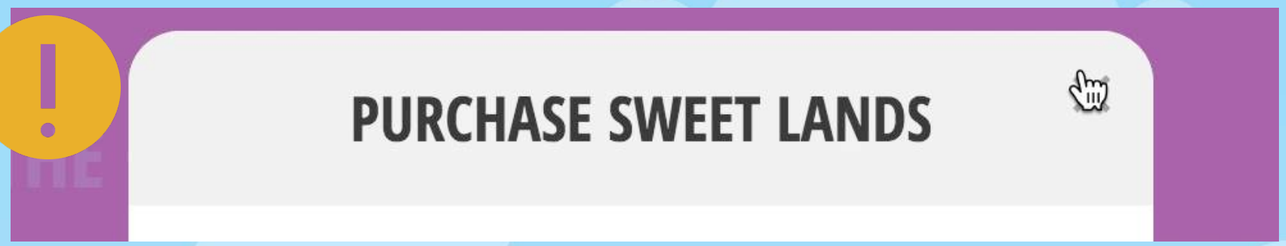


Using Transform to Rotate

CSS

```css
.modal-close {
  font-size: 200%;
  right: 15px;
  top: 0;
  position: absolute;
}

.modal-close:hover {
  transform: rotate(360deg);
}
```



The transformation is jumping from the start state immediately to the end state.

Rotate takes any number value with “deg” or “turn” unit suffix.

```css
transform: rotate(1turn);
```

Transitioning the Transform Rotate

CSS

```css
.modal-close {
  font-size: 200%;
  right: 15px;
  top: 0;
  position: absolute;
  transition: transform 4s;
}

.modal-close:hover {
  transform: rotate(360deg);
}
```

Adding `transition: transform` will allow us to see the icon changing state over time:

Changing the Timing Function

```
transition: transform 4s;
```

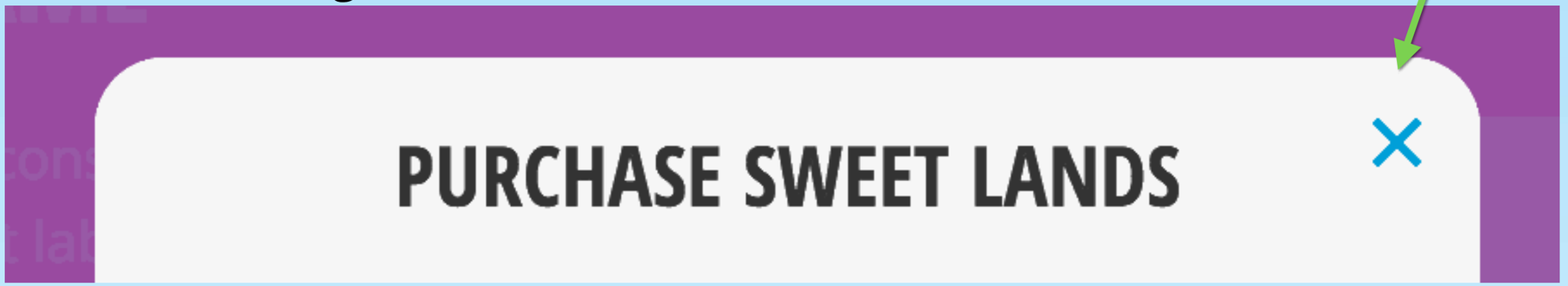
Default timing function is ease.

Ease Timing Function

```
transition: transform 4s ease-out;
```

See the subtle change a different timing function like ease-out can make?

Ease-out Timing Function



Timing Functions

```
ease
linear
ease-in
ease-out
initial
inherit
ease-in-out
cubic-bezier
```

ADVENTURES
IN WEB ANIMATIONS

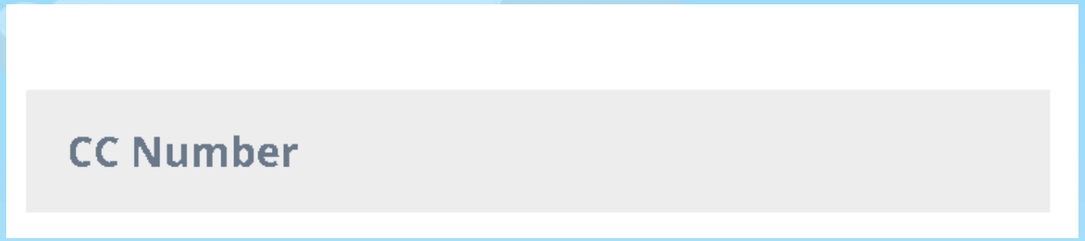
Level 2 – Transforms

SECTION 2

Transforming Scale and Translate

Creating Interactivity With Inputs

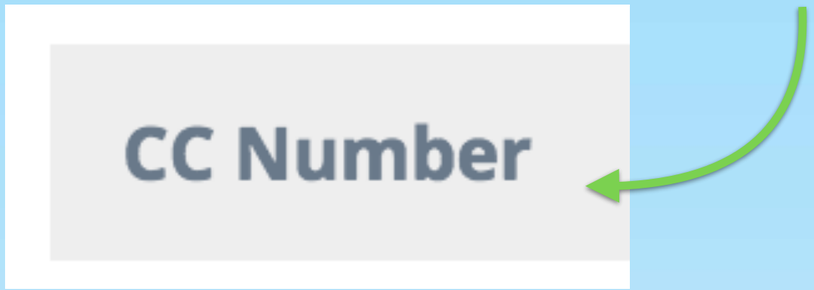
Form inputs are an excellent use of animations on the web.



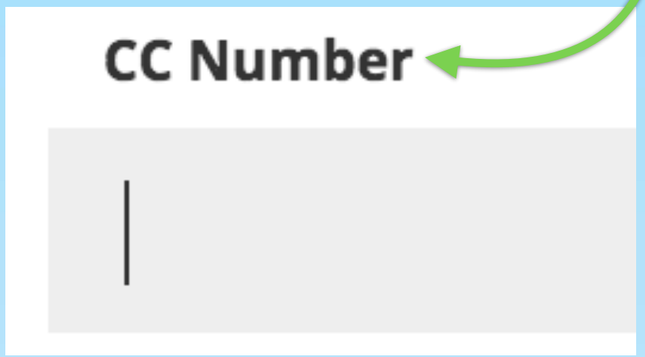
Analyzing the States of the Input Animation

If we break it down, we want our input label to have 2 different states.

We want the initial state of our label to provide information as a text placeholder.



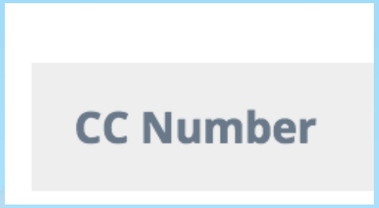
On input:focus, we want the label to slide up and scale down, becoming your average label for an input.



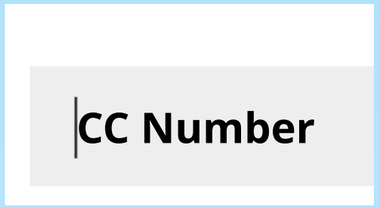
Step 1: Transition the Text Color

1. The input label text is **Transitioning Color**.

initial state



focused state



CSS

```css
.form-input + .form-label {
  position: relative;
  padding: 0 1em;
  color: #6A7989;
  transition: color 0.3s;
}

.form-input:focus + .form-label {
  color: #333333;
}
```

Only select the **first label after each input**

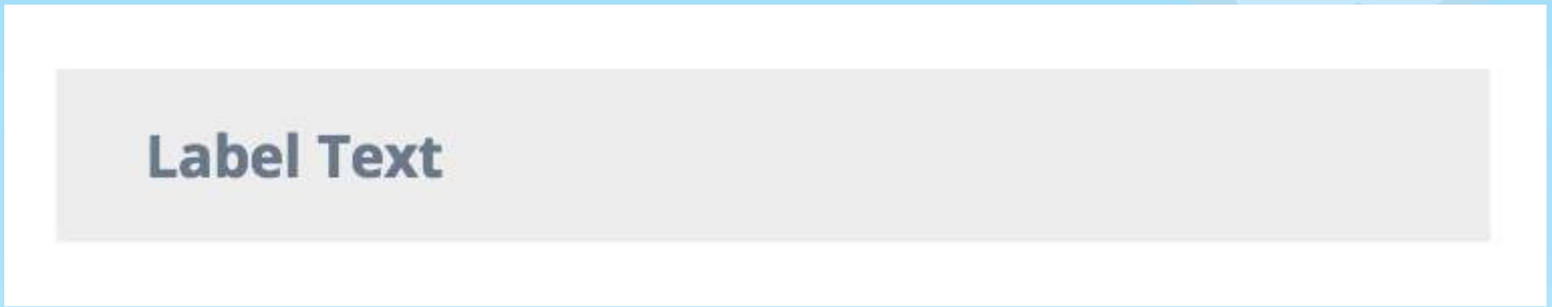
darker gray

ADVENTURES IN WEB ANIMATIONS

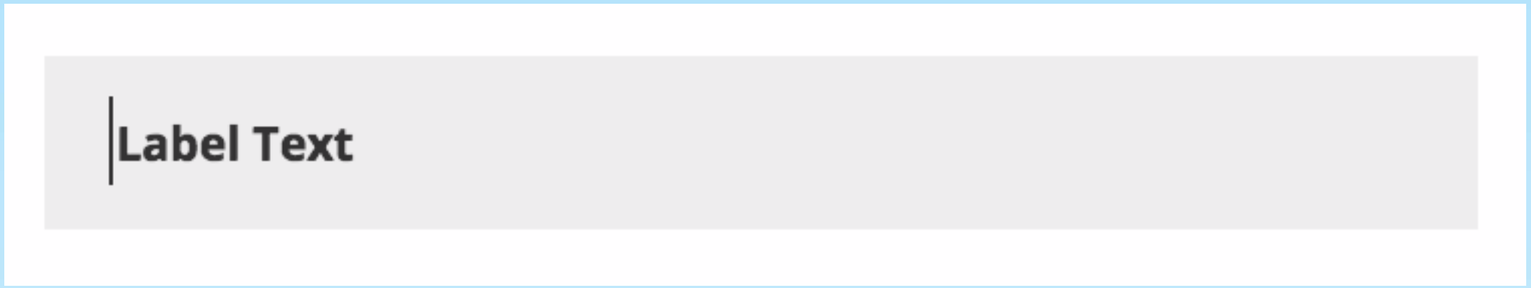
Step 2: Scaling the Label Size

1. The input label is **Transitioning Color**.
2. The input label is **Scaling Down** 80% of its original state.

initial state



focused state



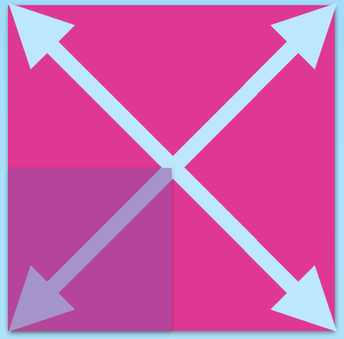
ADVENTURES IN WEB ANIMATIONS

Transform Scale

Scale: to stretch an element based on the value multiplier

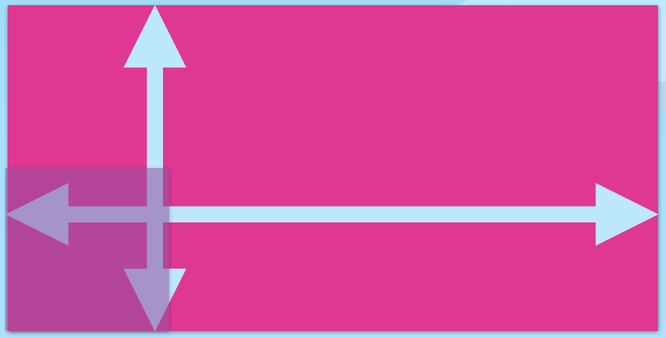
If only 1 value is provided, it will scale the element in both directions by that value.

```
transform: scale(2);
```



make it twice the size

```
transform: scale(4, 2);
```



stretch horizontally by 4, stretch vertically by 2

You can also specify the X and the Y separately:

```
transform: scaleX(value);
```

```
transform: scaleY(value);
```

Scaling Down the Label as It Moves Up

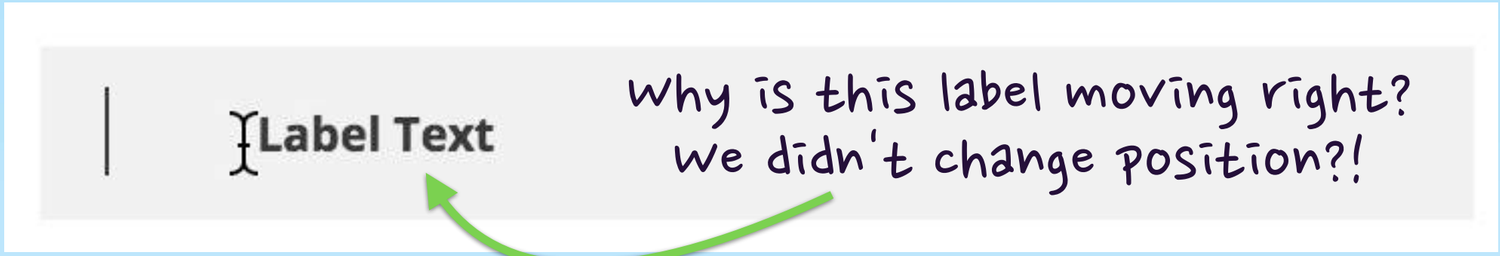
Scaling down to 80% of its original size and transitioning scale:

CSS

```css
.form-input + .form-label {
  position: relative;
  transition: color 0.3s, transform 0.3s;
}

.form-input:focus + .form-label {
  color: #333333;
  transform: scale(0.8);
}
```

transition both color and scale



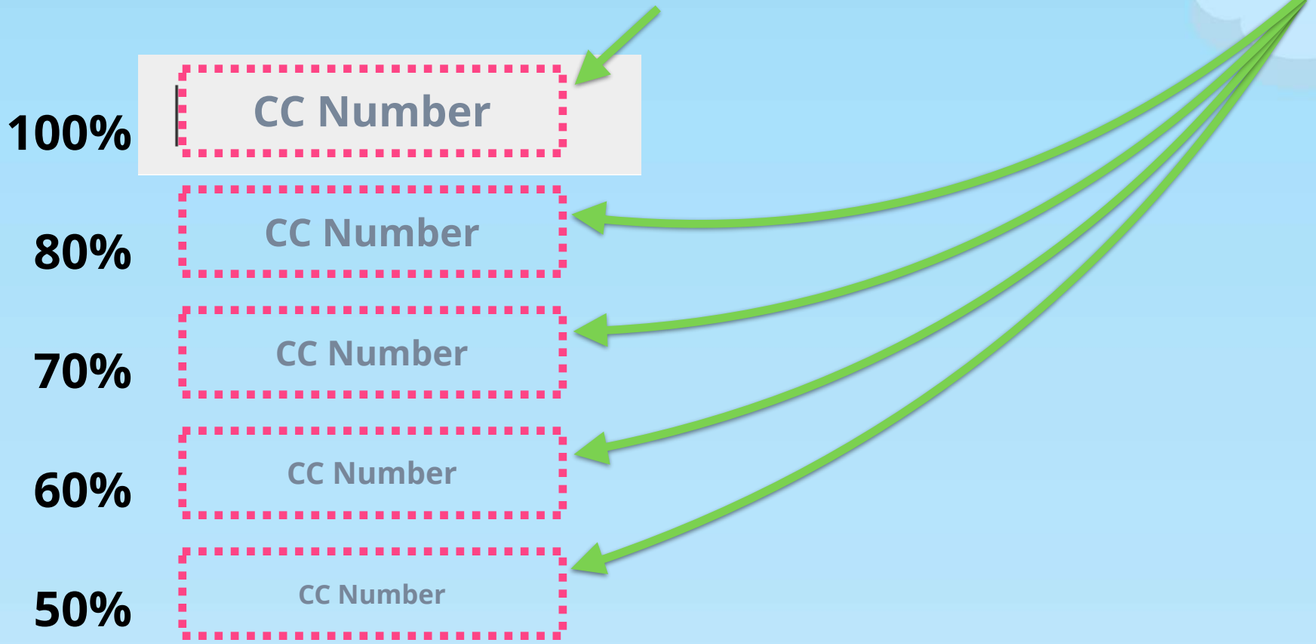
ADVENTURES IN WEB ANIMATIONS

The Box Model and Scaling Gotcha

When you scale something down, it still maintains its original box model size.

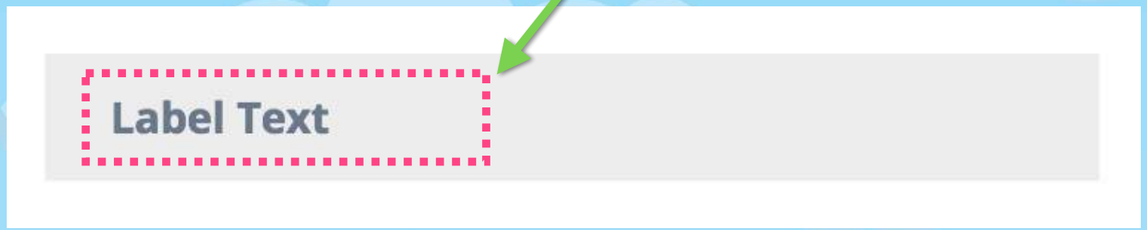
Let’s say the “CC Number” label takes up 100px height and 400px width.

No matter how small you scale, the label will still take up 400px x 100px.

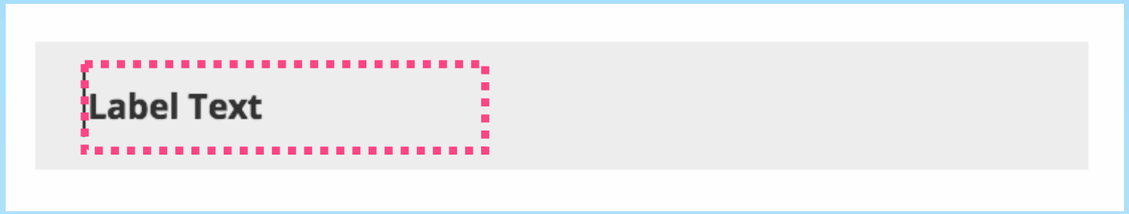


The Desired Label vs. the Current Label

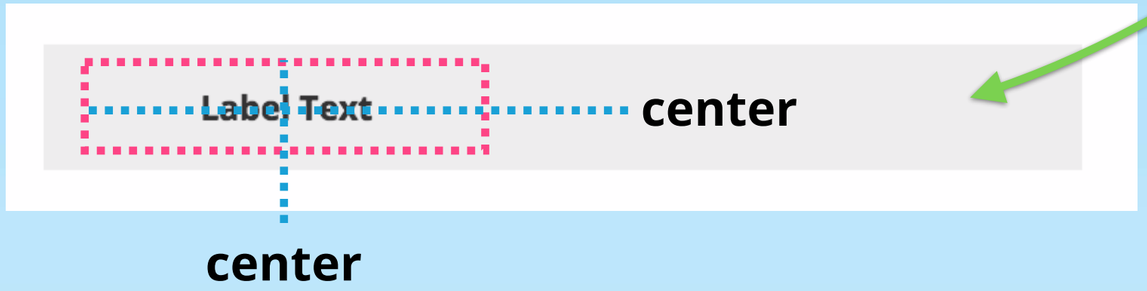
initial state



desired focused state



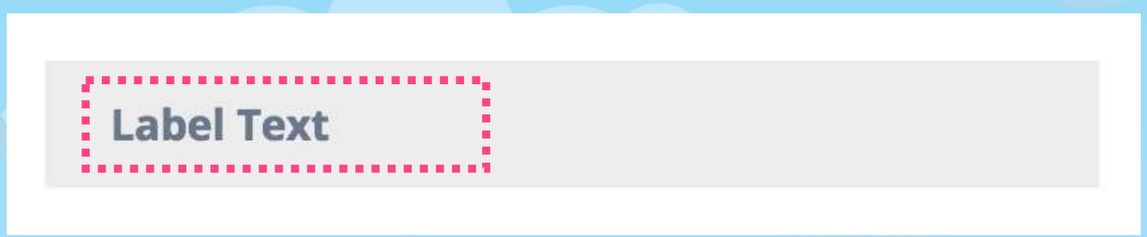
current focused state



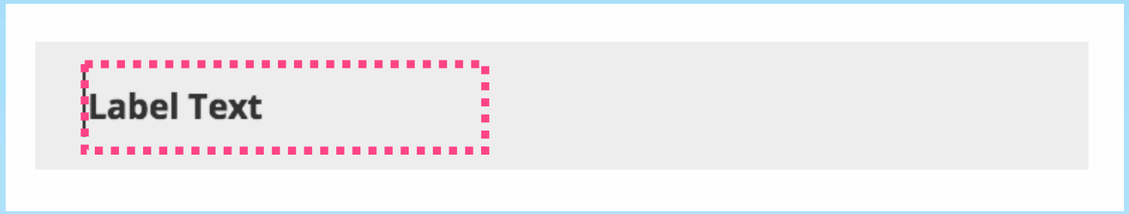
As we scale the text down inside this permanent 400x100 label, it scales around an origin of center.

The Label's Origin

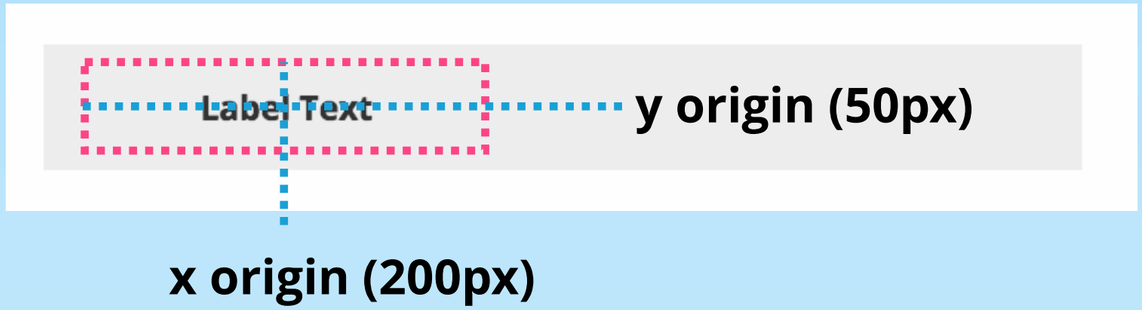
initial state



desired focused state



current focused state



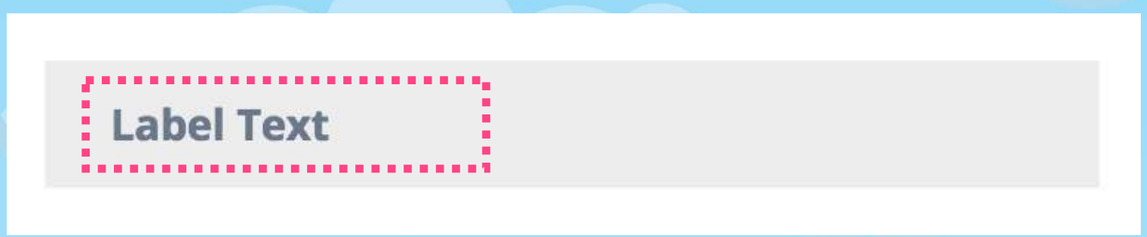
As we scale the text down, inside this permanent 400x100 label, it scales around the center (200x50).

```
transform-origin: center center;
```

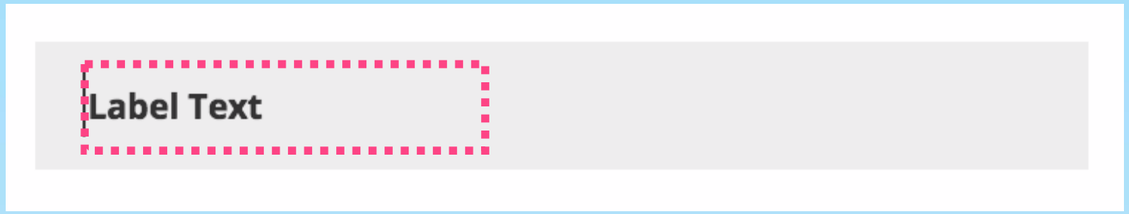
y origin **x origin**

Changing the Label's Origin

initial state

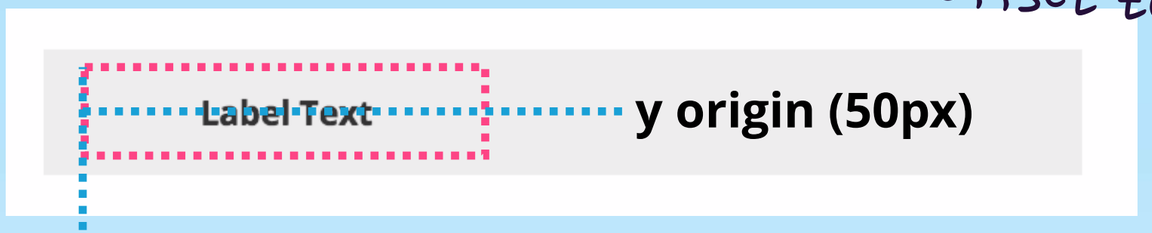


desired focused state



current focused state

changing our x offset to left



We can set this transform-origin in either keywords (center, right, top...) or in pixels.

```
transform-origin: center left;
```

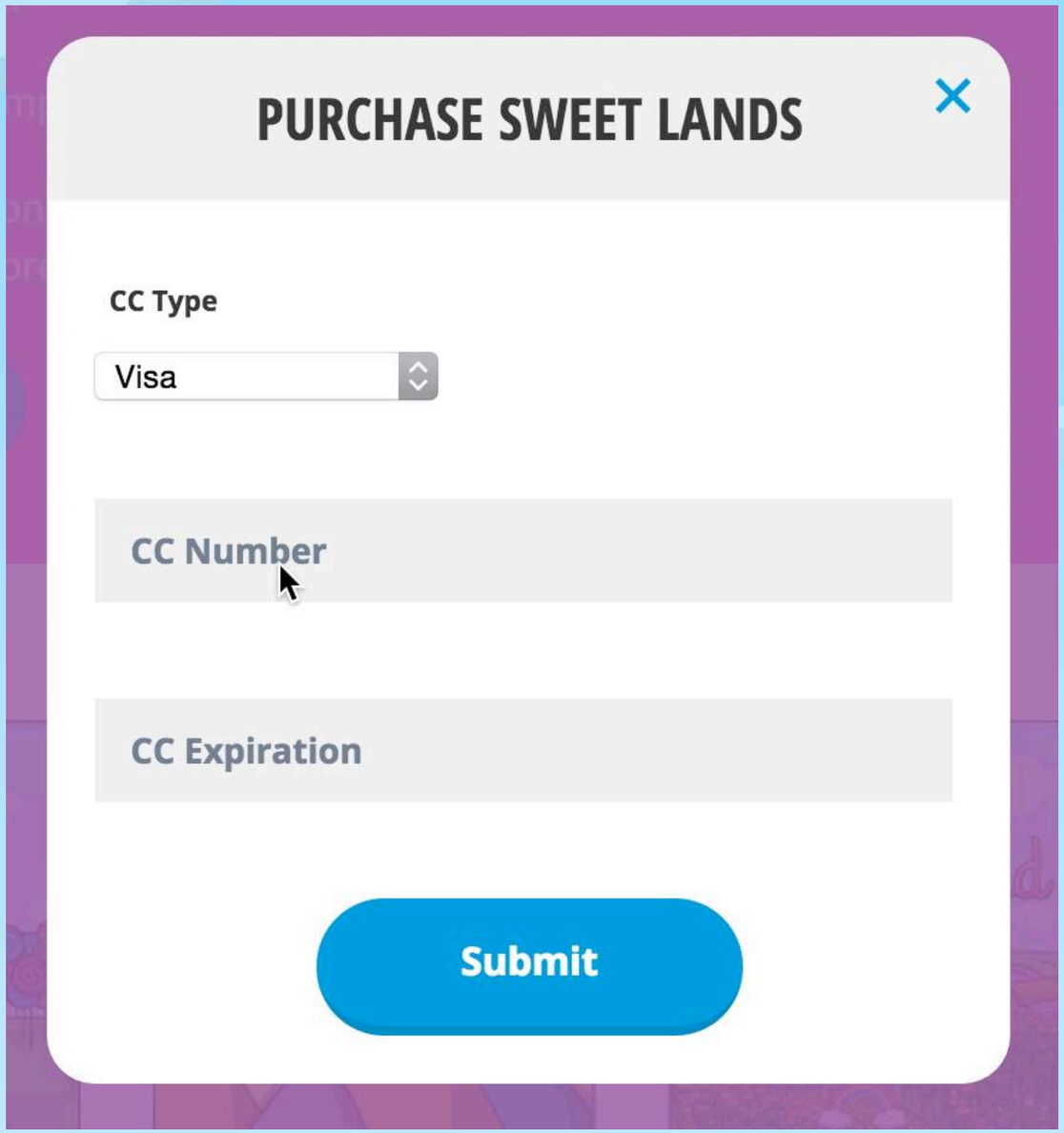
y origin **x origin**

Solution: Set Transform Origin to Center, Left

CSS

```css
.form-input + .form-label {
  position: relative;
  transform-origin: center left;
  transition: all 0.3s;
}

.form-input:focus + .form-label {
  color: #333333;
  transform: scale(0.8);
}
```

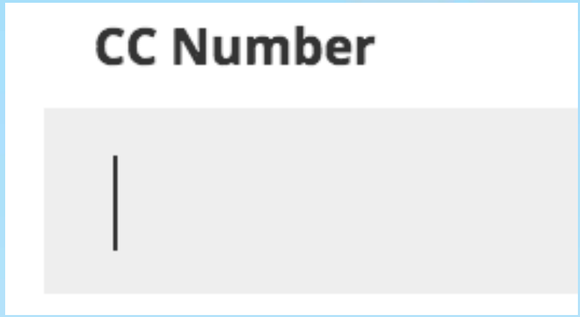


Step 3: Translate the Text Position

1. The input label is **Transitioning Color**.
2. The input label is **Scaling Down** to 80%.
3. The input label is **Translating Up** above the input.

initial state

focused state



ADVENTURES IN WEB ANIMATIONS

What Is Translation?

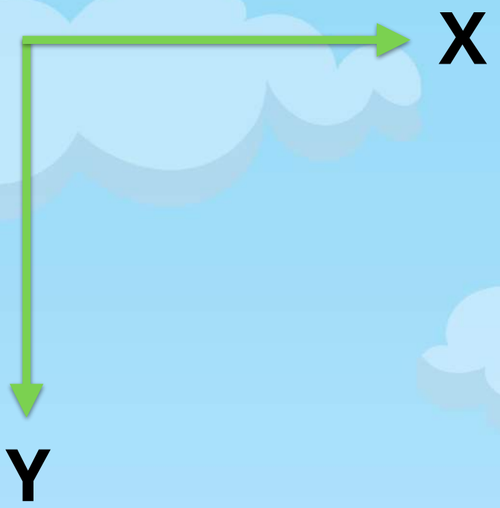
Translate simply means **to move** something.

move right 3

```
transform:translateX(3px);
```

move up 3

```
transform:translateY(-3px);
```



move right 3

move down 3

```
transform:translate(3px);
```

ADVENTURES IN WEB ANIMATIONS

Moving the Label Up With TranslateY

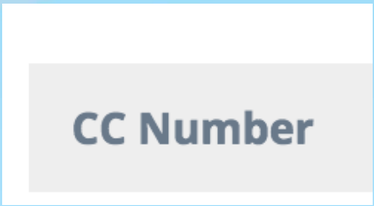
On input:focus, the label of the input should move up out of the way.

CSS

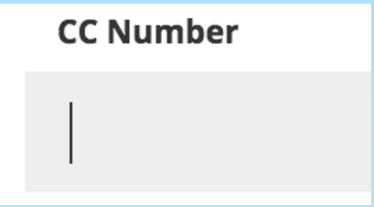
```css
.form-input + .form-label {
  position: relative;
  transition: color 0.3s, transform 0.3s;
}

.form-input:focus + .form-label {
  color: #333333;
  transform: scale(0.8), translateY(-40px);
}
```

initial state



focused state



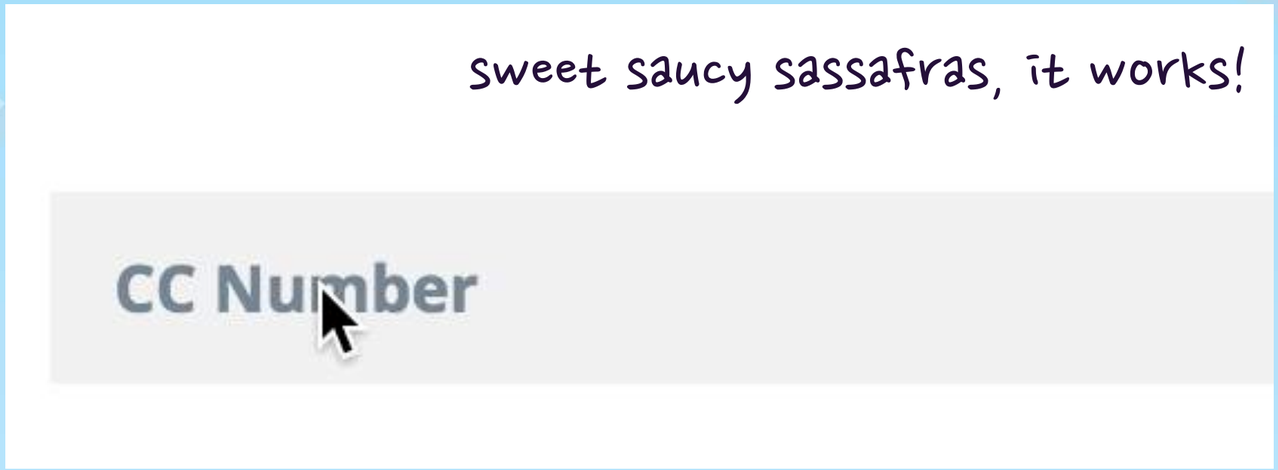
Can shorten this transition's line by using the `all` keyword.

```css
transition: all 0.3s;
```

move up 40px

Our Input Animates Properly!

1. The input label is **Transitioning Color**.
2. The input label is **Scaling Down** to 80%.
3. The input label is **Translating Up** above the input.



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